This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A computer system for processing a query, the computer system comprising:

      a processor;

      a memory;

      a data store comprising a table of documents, each document having an associated document type in a hierarchy of document types, each document type being associated with ~~having~~ a type path that is a path from a root document type to the document type in the hierarchy of document types and that is constructed as a function of the document type, the table comprising a plurality of entries representing the ~~each~~ documents and their respective ~~its~~ associated type paths; and

      a document retrieval system that accesses the table in the data store to determine, for each document, if its associated type path will satisfy the query, and generates query results comprising each type path that satisfies the query, wherein the document retrieval system is configured to determine, for each document, whether its associated type path contains one of a value specified by the query and a prefix of a value specified by the query.

2. (Previously Presented) The computer system of claim 1, wherein each document type is a user-defined type (UDT).

3. (Previously Presented) The computer system of claim 1, wherein a document type can be a subtype of another document type.

4. (Canceled)

5. (Original) The computer system of claim 4, wherein the data store comprises a computed column for storing each type path.

6. (Original) The computer system of claim 4, wherein each type path comprises a variable-length encoded value.

7. (Previously Presented) The computer system of claim 6, wherein each variable-length encoded value corresponds to a hierarchy level of the document type of the associated document.

8. (Canceled)

9. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 25, wherein each document type is a user-defined type (UDT).

10. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 25, wherein a document type can be a subtype of another type.

11. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 25, wherein each document has an associated type path.

12. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 11, wherein each type path belongs to a computed column in the table.

13. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 11, wherein each type path comprises a variable-length encoded value.

14. (Currently Amended) The computer ~~hardware / software interface~~ system of claim 13, wherein each variable-length encoded value corresponds to a hierarchy level of the document type of the associated document.

15 – 24. (Canceled)

25. (Currently Amended) A computer system for processing a query, the computer system comprising:

a processor;

a memory;

a data store comprising a table of documents and associated pre-computed values, the pre-computed values comprising information to discern objects based on type pursuant to a hierarchical search, each document having an associated document type in a hierarchy of document types, the document type associated with a document being used to compute the pre-computed value associated with that document; and

a document retrieval system that accesses the table in the data store to determine, for each document, if its associated pre-computed value will satisfy the query, and generates query results comprising each pre-computed value that satisfies the query, wherein the document retrieval system is configured to generate an estimate of the selectivity of the query at least in part by

creating a histogram over the pre-computed values, the histogram having a plurality of elements representing document types in the hierarchy of document types, each element associated with a quantity of documents of the document type represented by that element,

encoding the query to describe one or more documents to retrieve based on an encoded query type,

for each element of the histogram, determining whether the encoded query type is a prefix of the document type represented by the element of the histogram,

for each element of the histogram for which the encoded query type is determined to be a prefix of the document type represented by the element of the histogram, adding the associated quantity to a sum of matching elements,

for each element of the histogram for which the encoded query type is determined not to be a prefix of the document type represented by the element of the histogram, adding the associated quantity to a sum of non-matching elements, and

generating the estimate of the selectivity of the query as a function of the sums of matching elements and non-matching elements.